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COMPARISON OF SINGLE AND MULTIPLE FUNCTIONAL COMMUNICATION TRAINING RESPONSES FOR THE TREATMENT OF PROBLEM BEHAVIOR

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Two functional communication training (FCT) conditions without extinction were compared to treat the problem behavior of a child with developmental disabilities. The individual was taught to emit a single FCT response to obtain one of six items delivered in a randomized order or multiple FCT responses that specified the exact item. Results showed that only the FCT-multiple condition reduced problem behavior and maintained alternative mands.

DESCRIPTORS: problem behavior, functional analysis, functional communication training

A common differential reinforcement intervention for problem behavior has been referred to as functional communication training (FCT; Carr & Durand, 1985). In spite of the effectiveness of FCT as a treatment for problem behavior, circumstances may limit its efficacy. For example, the individual typically is taught to emit a single response to obtain a reinforcer. Given that the FCT response serves as a mand (Skinner, 1957), a single FCT response may not be sufficient to produce reinforcement effects when multiple reinforcers maintain problem behavior (e.g., several tangible items, a tangible item and attention).

One solution to this problem may be to teach the individual to emit responses that specify the exact item. The purpose of this study was to compare the efficacy of teaching an individual to emit a single, more general, FCT response (e.g., "I want treats") versus multiple FCT responses (e.g., "I want Nintendo" and "I want chips") that specify the exact item.

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METHOD

Ashby was a 7-year-old boy who had been diagnosed with severe mental retardation and autism. He was referred to an inpatient unit for the assessment and treatment of self-injury (hitting, pinching, biting, and scratching), aggression (pinching, pulling hair, hitting, head butting, and scratching), and property destruction (knocking objects off surfaces; throwing objects; ripping, breaking, and tearing objects; and banging on walls or objects). The alternative mand (FCT response) consisted of the use of line drawings (2.54 cm by 2.54 cm) (picture communication symbol or PCS). The participant was required to form a sentence with the PCS by combining an "I want" picture with a picture of an item and saying the corresponding words (e.g., "I want *X*"). The PCS was paired with spoken words to increase Ashby's vocal speech. All sessions were conducted on the living unit, which included a table, two chairs, and other necessary materials (e.g., work materials and toys).

A functional analysis was conducted to

identify the variable maintaining problem behavior. The functional analysis conditions (attention, demand, and play) were identical to those described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994), and each session lasted 20 min. Two additional conditions, divided attention and tangible, were included based on caregivers' reports. During the divided attention condition, two therapists interacted with each other, and attention was delivered contingent on problem behavior. During the tangible condition, the participant was given 1-min access to a video game (Nintendo Gameboy®) (his most highly preferred leisure item identified through a preference assessment; Fisher et al., 1992) contingent on problem behavior. The alone condition was omitted because previous assessments indicated that self-injury was not maintained by automatic reinforcement.

Following the functional analysis, a comparison of two FCT conditions was conducted using a reversal design. Reinforcement in all conditions (i.e., baseline and FCT) consisted of 30-s access to one of six moderately to highly preferred items (food and toys) identified through preference assessments (Fisher et al., 1992). Prior to the start of each session, the participant was given 2-min access to all six items, and the experimenter randomly determined (without replacement) the order in which items were to be delivered contingent on problem behavior (all conditions) and alternative mands (FCT-single). Prior to each FCT condition, the participant was taught to emit the alternative mand or mands using an errorless learning procedure until he independently emitted the mand with 90% accuracy in three consecutive 10-trial sessions. During training, Ashby received all six items (FCT-single) or the specific item requested (FCT-multiple) contingent on the alternative mand, and problem behavior was ignored.

During baseline, reinforcement (one of six items) was delivered contingent on problem behavior. In the FCT-single condition, reinforcement (one of six items) was delivered contingent on the alternative mand, which consisted of saying "I want treats" while forming a sentence with the corresponding PCS. In the FCT-multiple condition, Ashby was required to form a sentence using PCS and vocal speech to request specific items (e.g., "I want chips") that were delivered contingent on the mand. Reinforcement (one of six items) also was provided contingent on each occurrence of problem behavior in both FCT conditions (i.e., FCT was implemented without extinction). All baseline and FCT sessions lasted 10 min.

A second independent observer collected data in 57% of the functional analysis sessions and 39% of the FCT sessions. Interobserver (exact) agreement was 100% for problem behavior during the functional analysis and 98% (range, 80% to 100%) and 99% (range, 91% to 100%) for problem behavior and alternative mands, respectively, during the FCT analysis.

RESULTS AND DISCUSSION

Results of the functional analysis (top panel of Figure 1) suggested that Ashby's behavior was maintained by positive reinforcement in the form of access to tangible items. During the FCT-single condition (bottom panel), problem behavior decreased and the alternative mand increased; however, these effects were not maintained over time. Conversely, problem behavior remained low and alternative mands remained high in both FCT-multiple phases.

Results of this study showed that, at least for this participant, a treatment involving multiple FCT responses rather than a single, general FCT response was most effective, even without a reductive procedure (e.g., extinction or punishment) for problem behavior. It is conceivable that the FCT-multiple condition was effective because alternative

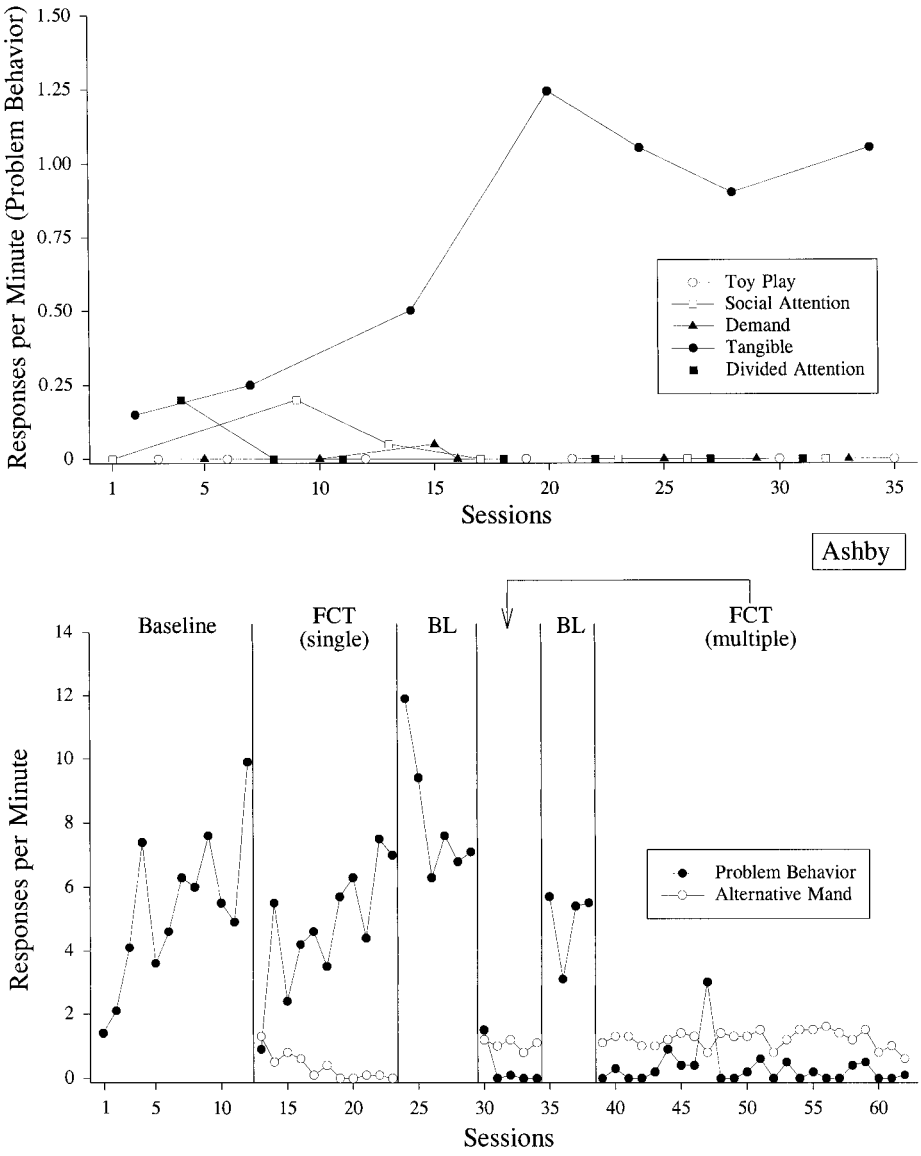

Figure 1. Number of responses per minute of problem behavior during functional analysis (top panel) and number of responses per minute of problem behavior and the alternative mand during FCT (bottom panel).

mands produced continuous reinforcement (i.e., the individual specified exact reinforcers), whereas problem behavior produced intermittent reinforcement (i.e., items were delivered randomly).

Nevertheless, the generality of these results is limited because prior exposure to the FCT-single condition may account for the superiority of the FCT-multiple condition. A reversal to the FCT-single condition following the initial FCT-multiple phase should be included in future studies to evaluate potential sequence effects. In addition, only one item (Nintendo Gameboy®) was used during the tangible condition of the functional analysis, so it is not clear if the additional items included in FCT maintained problem behavior. However, Ashby

requested each of the six items at least once during the FCT-multiple condition, suggesting that multiple reinforcers maintained alternative mands (and presumably problem behavior).

Finally, these data represent a single case and, thus, should be considered preliminary until adequate replications are conducted. However, these findings suggest that more complex FCT responses may be beneficial in terms of decreasing problem behavior and maintaining alternative mands for some individuals.

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